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STATISTICS

OF

GLASGOW ROYAL INFIRMARY.

1848.

BY

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SUPERINTENDENT OF THE INFIRMARY.


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STATISTICS, &c.

THE annual vital statistics of hospitals present for the most part, in their general outline and details, so striking a similarity of results and confirmation of previously-established inferences, that it may almost appear superfluous to attempt to deduce from the records of any single year, fresh subjects of novelty and importance, that might prove interesting to the medical inquirer. Nor are the data thus afforded to be received as altogether free from the imputation of fallacy. In the construction of every extensive disease list, various maladies are taken for granted, and not a few too frequently passed over, from the fact of their classification interfering materially with a well-looking pathological table. Thus, no more common error is committed in the preparation of these returns, and one to which all concerned in their construction must plead more or less guilty, than to affix to each patient some particular malady for which he had been treated, without making allowance for co-existing complications, which so frequently attend the progress of disease, and have a direct influence on the results of practice. Again, in subjecting to statistical analysis those series of affections which are rarely met with either in hospitals or elsewhere, the data which we possess are

insufficient to warrant any practical deduction ; while in other diseases of uncertain seat, the difficulties attending diagnosis are such, that even in the practice of the most erudite, a mere conjecture is frequently all that can be arrived at during life, and the true nature of the malady fails to be elicited, save by the aid of the scalpel after death. With the exception of the data furnished by the more usually prevalent affections of the respiratory organs, by the recorded results of practice in zymotic diseases, and the more frequent surgical operations, there are few other sources of information from which deductions could be made that are free from the risk of being overturned by subsequent experience, or found upon closer scrutiny to be opposed to truth.

As the results of a numerical analysis of each separate disease are in a great measure fruitless, and but ill requite the serious labour entailed on the statist, we are induced to adopt a more general plan in the construction of the present report, than that previously followed in this Journal for the four preceding years ; and to confine our observations to those general results which are most comprehensive and therefore least likely to mislead. It is not meant on this account to attach less value to the minute details of statistical investigation. On the contrary, the foregoing observations afford in themselves negative evidence of the importance of attending to accuracy in all branches of numerical investigation, and of adhering to some uniform system for the purpose of comparison with other and similar sources of information.

Of late years this method of reasoning has deservedly obtained a paramount bearing in the solution of many important questions connected with pathology and hygiene. In practical surgery it claims precedence over all other doctrines for ascertaining the true amount of success attendant on different operations ; and, while it condemns almost *in toto* the performance of one set, it exhibits also the trivial amount of danger attending others, formerly considered as the most hazardous. The opportunities afforded by hospital practice are superior to all other sources from which we seek to obtain information. A larger number of diseases are annually treated in each establishment than can possibly fall to the lot of any single practitioner. Faithful, and in many instances comprehensive, records of the cases are kept, which are generally open to the medical public for inspection. A careful transcript of the results can thus be readily obtained, and attempts to make the practice more successful than it justly deserves, are by these measures entirely obviated.

Almost every town in Scotland in which the population exceeds 12000 is now possessed of an hospital for the relief of its diseased poor, and is conducted by a respectable board of management, who annually furnish to the local public a full statement of their

proceedings, along with disease tables compiled from the records of cases occurring during the year. These appendages to the ordinary reports, although on the whole very accurately and comprehensively drawn up, are exceedingly wanting in uniformity of system, so that many diseases,—we would instance particularly the various types of fever,—are enumerated in such a way that it is morally impossible to define with precision the extent and prevalence of any peculiarity. It would facilitate much the progress of statistical inquiry if one uniform system was adopted by hospital officials in the preparation of disease lists, and less attention was paid to suit the returns for the inspection of the non-medical public, with whom they can at best only gratify morbid curiosity without being conducive of any ulterior advantage. A large amount of information, collected from different sources and extending over a series of years, comprising the aggregate results of a multiplied series of facts, would thus be obtained; and much valuable matter, which at present is almost lost sight of, could be turned to good account in ascertaining the relative mortality of disease in different hospital districts, besides throwing light on the sanatory conditions which lead to the same.

In the report for 1847 we adverted to the extensive and fatal visitation of fever to which Glasgow, in common with the rest of the country, was subjected at the period, and which compelled the authorities to have recourse to a large amount of auxiliary accommodation, as that afforded by the Royal Infirmary was found inadequate to meet the emergency. The spring of the past year happily witnessed the gradual and steady decline of the epidemic, and gave reasonable hopes for the future continuance of a better state of things. The temporary accommodation in connection with the infirmary was dispensed with on the 24th of February; and the number of fever cases gradually declining throughout out the city and suburbs as the year advanced, the parochial authorities closed the auxiliary hospitals they had instituted, and sent their diseased poor, as formerly, to the infirmary. Notwithstanding the extreme prevalence of epidemic catarrh in the early part of the year, and of scarlatina during the autumn months, comparatively few cases of these diseases are appended to our returns, arising partly from the fact of both affections prevailing more extensively among the upper classes of the community than among those who generally seek refuge in hospital, and partly also from the comparative mildness of the symptoms in the former disease,—a circumstance always of considerable weight with the labouring class before they are necessitated to solicit medical advice. After the month of May the number of fever cases remained stationary or nearly so throughout the remainder of the year, while, during the whole period now

under consideration, medical and surgical cases kept rather below an average, and present likewise a proportionately diminished amount of mortality. The calm, however, which succeeded the severe storm of epidemic visitation, was destined to be but of limited duration. Rumours of an approaching pestilence far more appalling than its forerunner had already alarmed the public mind, and constrained the guardians of the public health to assume every necessary precaution for the purpose of grappling with the dreaded malady. Subsequent experience soon proved the necessity as well as the comparative futility of the best directed and most philanthropic measures on their part. Epidemic cholera first visited Glasgow on the 4th of November, previous to which time arrangements were made by the managers to accommodate as many cases as possible within the infirmary; and accordingly the fever house in connection with the institution was set apart solely for their reception, being nominally opened on the 27th of November, the period when the first cases were brought for admission. As the epidemic did not become prevalent till near the close of the year, and as other hospitals were established by the parochial authorities, our cases are necessarily limited in number, and present but a small fraction of the total treated during the year. The following abstract will exhibit the general movement in hospital during 1848:—

Remaining 1st January 1848 from former year,	366		
Admitted since to 1st January 1849,	3770		
Total under treatment during the year,	4136		
Dismissed as cured,	2663		
Relieved, &c.,	636		
Died,	562		
Remaining 1st January 1849,	275		
			4136
Medical and Surgical Hospital.		Fever Hospital.	
Remaining 1st January 1848, 172		Remaining 1st January 1848, 194	
Admitted since, 2184		Admitted since, 1513	
Total under treatment, 2356		Total under treatment, 1707	
Dismissed as cured, 1266		Dismissed as cured, 1386	
Relieved, &c., 636		Died, 250	
Died, 275		Remaining 1st Jan. 1849, 71	
Remaining 1st Jan. 1849, 179			1707
	2356		
Cholera Hospital, opened 27th November 1848.			
Admitted to 31st December inclusive,			73
Cured,			11
Died,			37
Remaining in hospital 1st January 1849,			25
			73

A general outline of the diseases and injuries treated in the medical and surgical department is furnished by the next table, arranged under 13 systems, for the sake of brevity and illustration.

	Cases.	Cured.	Reliev., &c.	Died.
1. Fevers,	33	17	14	2
2. Diseases of the nervous system,	133	62	59	12
3. „ „ circulatory system,	51	22	21	8
4. „ „ respiratory system,	261	105	96	60
5. „ „ genito-urinary syst.,	247	138	90	19
6. „ „ gland. & secret. syst.,	101	49	45	7
7. „ „ integumentary syst.,	158	116	37	5
8. „ „ osseous system,	300	216	45	39
9. „ „ artic. & fibrous syst.,	202	115	76	11
10. „ „ chylopoietic system,	136	94	22	20
11. „ „ eye, ear, mouth, throat,	34	25	7	2
12. Dropsies,	121	32	52	37
13. Miscellaneous diseases,	400	275	72	53
Total,	2177	1266	636	275

1. FEVERS.—Cases of fever not unfrequently find their way into the medical wards of the hospital, although the standing orders forbid their being placed in connection with ordinary medical patients. In the majority the primary disease had been obscured at the period of admission, or it had supervened when the patients were under treatment for some other disease,—the total number annually arranged in this way varying in amount with the presence or non-prevalence of an epidemic. In the course of the past year, 33 cases are reported as having occurred under the above circumstances, manifesting the following types:—Typhus, 9 cases, all sent to the fever hospital; synochus and relapsing synocha, 7, 3 dismissed cured, 3 sent to fever wards, and 1 died from the severe gastro-hepatic complication which was formerly so characteristic of this type of fever, but has latterly almost entirely disappeared; 4 cases of dothineritis; 3 of small-pox; 2 of ague; and 7 of slight pyrexia, comprise the remainder of the patients dismissed. The remaining death was occasioned by scarlatina, and occurred in the case of a female admitted with necrosed *tibia*, who fell a victim to the malignant form of the exanthem after a short residence in the house. The column headed *relieved* is properly excluded in the classification of our fever tables, being deemed unnecessary, but is made use of in the above enumeration to indicate the number of individuals affected with fever who were removed to the ordinary fever accommodation; as, in the event of the disease being considered contagious, the danger to be apprehended from retaining the affected in contiguity with those not similarly affected is very great, and more than counterbalances the supposed advantages said to attend the mixed system.

Early segregation of those contagiously affected, so far as it is

consistent with the safety of the patients, has been universally the practice of the Glasgow hospital, both in ordinary seasons and during the progress of epidemics ; and, notwithstanding the mortality from exposure among the officials and assistants on the last mentioned occasions, has always been heavy, and a matter of serious reflection and regret to all concerned in the management, the arrangement is rendered unavoidable from the large numbers presenting themselves for treatment. The virulence of the contagious principle is, moreover, well known to rise and fall in intensity with the increase and decrease of the disease ; and the dangers to be apprehended in seasons of trivial prevalence of fever are so far diminished, that it is a rare occurrence to meet with a case of fever among the attendants on these occasions ; consequently, little benefit could accrue by a deviation from an established rule, which had been found to work as well in practice as in theory. No better illustration of this fact can be furnished than the following, embracing the practice of the hospital for the last two years and a-half. Dr Orr, in his paper on the epidemic fever of 1847, No. 175, when alluding to the mortality among the parties engaged in attendance on the sick, mentions the fact of forty of the officials connected with the infirmary having been attacked. But since that time to the present, extending over a period of fifteen months, we have not had a single case of fever among the attendants, although the number of cases of this description resident in hospital at any one time was never below 50, and the estimated average number 85. We have been induced to digress thus far from the general tenor of our remarks, as the subject has of late given rise to a good deal of discussion in some quarters, nor does there seem a probability of its being soon brought to a final adjustment.

2. DISEASES OF THE NERVOUS SYSTEM.—The numbers annexed to this head indicate about the average amount of nervous diseases annually treated in hospital, and are composed chiefly of cases of general and partial paralysis, along with a miscellaneous variety of hysterical and neuralgic affections. The deaths reported were 12 in number, 3 of which are ascribed to hemiplegia, 2 to hydrocephalus, 2 to tetanus, 1 to delirium tremens, and the remaining 4 to chronic diseases of the brain.

Instances of delirium tremens are of rare occurrence in the Infirmary as compared with the returns of other hospitals. During the past year, only 4 cases are reported proving fatal, and the total number for the last four years does not amount to more than 20, of which 7 have died ; while in the last published statistics of the Edinburgh Infirmary, I find no fewer than 70 cases for one year, with 23 of a mortality. As there is no

positive regulation forbidding the admission of cases of delirium tremens to the Glasgow hospital, we presume that this statistical discrepancy between the two principal hospitals in Scotland, which in most respects bear a well-marked similarity, must depend more on the extra accommodation set apart for the purpose in Edinburgh than upon any inference we can draw in favour of the superior sobriety of our working population.

Cases of tetanus and pseudo-tetanus recorded were four in number, two having been affected with the acute and well-marked form of the malady, whose cases proved fatal, and two with the milder form recovering. The latter occurred under Mr Lyon's care, and presented some peculiarities in the symptoms worthy of notice. The first of these, to which I may advert, is that of a young woman, Anne Smoulin, aged 19, who figures in the records at three separate intervals during the year, as having been treated for the anomalously different affections of tetanus, primary syphilis, and typhus fever, and who presented herself a fourth time at the hospital with secondary symptoms, but was refused admission. This patient ascribed the cause of the nervous disease to the extraction of a molar tooth; and the symptoms, which were chiefly those of trismus, were at first readily relieved by the administration of chloroform. Shortly after admission, the anæsthetic agent failed in its relaxing influence, and recourse was had to strong purgatives and antispasmodics with apparently little benefit, as, in a report taken on the thirteenth day of her residence, the symptoms are stated to continue without abatement. By the persevering use of the remedies, separation of the jaws was at length partially effected, and the patient was ultimately dismissed well, after a stay of thirty-five days. Little doubt was entertained that the affection was of an entirely hysterical character in this patient, as she was known to suffer from catamenial irregularities for some time previous to admission. But the obstinacy of the symptoms, as well as the cause assigned for their appearance, show to what extent traumatic trismus may be simulated by the spurious form of the disease.

The other instance occurred in a young lad aged 17, who had sustained an extensive burn on the upper part of the trunk, including both arms, for which he was treated without any untoward symptom appearing for a period of seventeen days subsequent to admission. During the interval, the ulcerations caused by sloughing of the integuments were healing kindly, and the patient was otherwise proceeding favourably; but, at the time alluded to, he became affected with spasmodic rigidity of the maxillary muscles, with inability to move the jaw. On the day following, the muscular spasms extended to the neck and abdominal muscles, and the patient remained in a state of partial opisthotonos

for twenty-three days afterwards, with but little intermission of any of the symptoms, notwithstanding the active treatment to which he was subjected. As the ulcers proceeded to cicatrization, the stiffness and rigidity gradually lessened, and he was dismissed well after a seventy-seven days' residence.

3. CIRCULATORY SYSTEM.—The diseases classed under this head are limited when compared with the others; and if we withdraw from the numbers specified in the table, cases of *morbus cordis* and scorbutus, we nearly exhaust the system. Diseases of the heart, exclusive of cardiac dropsy, amounted in all to 28 cases, 6 of which were reported cured, 11 relieved, 5 dismissed with advice or in *statu quo*, while 6 died. There are few points connected with medical statistics, on which so little reliance can be placed, as the returns from the present source. Fully sensible of the defects attending a systematic classification of cardiac diseases, most statisticians agree in grouping them under one head, as the inaccuracies attending attempts at a minute subdivision would be even more unsatisfactory than the present system. The same remark applies to the returns furnished from cardiac dropsy, which indeed should be reckoned a mere symptom of the former, and not a disease *per se*, and might with propriety have been classed under the head of *morbus cordis*. But as an opposite practice has been formerly followed, for the sake of uniformity, we have adhered to the same in the present report.

Cases of aneurism were four in number,—three aortic, two of which were thoracic, and one implicating the abdominal portion of the artery, all dismissed with partial relief. The remaining case occurred in an old man affected with femoral aneurism, who, refusing to submit to the usual operation, was dismissed as an irregular case. An instance of death, referable to the present group, is instructive, as it shows the unforeseen casualties which may attend what are commonly deemed minor operations in surgery. A child, aged 20 months, was admitted with a *nævus maternus*, situate immediately over the left orbital region. Prior to admission, the growth had increased to nearly the size of a walnut, and pressure proving unsuccessful after repeated trials, recourse was at last had to ligature. The case proceeded favourably for two days after operation, subsequent to which time, comatose symptoms made their appearance, accompanied with slight convulsions, and terminating in death. No autopsy was permitted to be made. But there was little doubt, from the nature of the symptoms and contiguity of the structures implicated, that congestion of the brain had ensued after operation, and was the proximate cause of the fatal issue.

4. RESPIRATORY SYSTEM.—Diseases of the respiratory or-

gans afford fuller materials for statistical analysis than the classes already enumerated, inasmuch as the data which they furnish are more comprehensive, and the diseases themselves, from their frequency and well-known characters, are less liable to be confounded with others. The most formidable, as it is also the most numerous class of affections in the group, consists of cases of pulmonary consumption, which for the year amount to 99, 63 having been dismissed the house in various conditions, from the temporary return to health till the near approach of death, and the remaining 36 terminated fatally within the hospital. Of the other diseases uniting to swell the list, bronchitis furnishes 92 cases, of which 66 were cured, 18 relieved chiefly of a chronic character, and 8 died. Pneumonia affords 24 cases,—16 recoveries, 3 relieved, 5 deaths; and pleurisy 11 cases, with 7 recoveries, 1 relieved, and 3 deaths.

In the returns from phthisical cases, it appears to have been the established rule in the Glasgow hospital not to classify any such under the column set apart for the cases dismissed as cured, even when the apparent return to health was such as to warrant that conclusion. It is perfectly obvious, however, that in a disease of such an unmanageable nature as pulmonary phthisis, little reliance will be placed upon data prematurely furnished from the results of a few weeks' residence of the patients in hospital; and we have consequently adhered to previous custom in the preparation of the present returns, being at the same time fully aware that the flattering results of practice in one or two of the cases annually treated, are sufficient to justify us in bearing testimony to the accomplishment of what may well be ranked among the most important objects of pathology.

We have less reluctance in adverting to those cases which come under the category of relieved, as there are many such annually reported, even when the disease is considerably advanced in its progress, where much relief is obtained by a short residence in hospital. Of the above 99 cases, 57 were recorded as having undergone more or less improvement; 4 were dismissed at their own request; 1 for misconduct; and, strange enough, only 1 alleged as incurable. The majority of the cases relieved in the Royal Infirmary, and, we have reason to believe, a large proportion of cases dismissed with similar results from other institutions, present the same following characteristic features, explanatory of the benefits they obtain from treatment. Consumptive individuals of the poorer classes, who have previously enjoyed but indifferently good health, after exposure to cold or some other exciting or debilitating cause, present themselves for admission, frequently with urgent symptoms of extreme pulmonary congestion, or, it may be, with a considerable amount of acute or subacute pulmonic inflam-

mation. After a short stay in the house, where they are, in the meanwhile, submitted to mild antiphlogistic treatment, the symptoms become very much abated, and the patients are dismissed with the recommendation to betake themselves to the country, before the primary mischief, which may as yet be only in its incipient stage, has time to produce disorganization in the textures implicated. It is in a great measure owing to these conditions, fully explained by Dr Latham, and by him appropriately termed mixed phthisis, that we are to ascribe the partial success attending the treatment of the disease in hospitals, although the results are influenced to a large extent by many fortuitous causes, such as locality, facility of admission to hospital, length of residence, &c.

The following table, constructed from the most recent published reports of six hospitals in Scotland, will show the relative results of each, and how various causes tend to modify the same:—

Infirmaries.	Cases.	Cured.	Re- lieved.	Other grounds.	Died.	Mortality per cent.
Edinburgh Infirmary,	145	5	46	15	79	54·48
Glasgow Infirmary,	99	...	57	6	36	37·37
Aberdeen Infirmary,	27	2	11	6	8	29·63
Dundee Infirmary,	10	3	...	...	7	70·
Perth Infirmary,	19	...	6	...	13	68·42
Greenock Infirmary,	10	...	1	3	6	60·
Total,	310	10	121	30	149	48·64

Contrary to what we might, on first thoughts, anticipate, the mortality in the provincial hospitals is considerably higher than that of the Edinburgh and Glasgow infirmaries; the Aberdeen infirmary, for reasons which we do not pretend to explain, proving the only exception to the rule. A striking difference further is manifested by a comparison of the annual mortality returns from phthisis of the Edinburgh and Glasgow hospitals, arising, no doubt, from the longer stay of the patients in the former, and partly, we have reason to believe, from the admission of a larger number of hopeless and advanced cases of the disease. The average period of residence in the Edinburgh hospital appears, from the last statistics, to extend over 47 days; but, if we deduct from the total number the large percentage of cases terminating fatally, whose average residence is always much shorter than the others, we have little doubt that we would find the estimated stay of the relieved cases to come close upon 60 days. In the Glasgow hospital, on the other hand, the estimated residence of each patient does not exceed 29 days; and, as the mortality is some 17 per cent. less than in Edinburgh, the average stay of the relieved cases must consequently increase in a less proportion than the same cases in the last mentioned institution, and will probably be found not to exceed 35 or 36 days. But on referring to Dr

Walshe's report of the practice in the Brompton hospital* for consumption, we find it stated, as a general rule, that the mean length of stay of the most favourable class of cases nearly doubles that in the least favourable, and that improvement was more common than the reverse, even when excavation of the lung existed on admission. It would appear to follow, therefore, that there are other causes besides the lengthened residence which lead to a disproportion in the amount of mortality in separate establishments; and there seems much reason for entertaining the supposition, that the cause of the discrepancy in the returns of the Edinburgh and Glasgow hospitals is occasioned as much by the admission of a larger number of dying cases in the former institution, as by the longer stay of the patients in hospital.

The propriety of admitting hopeless cases of pulmonary consumption into hospital has been the subject of much difference of opinion, and is frequently censured; and, were we to judge merely from the mortality attending the practice, there is no lack of evidence to convince us of the truth of the previous statement. But the position in life, the domestic habits of the sufferers, as well as the want of any other asylum to meet their case, all combine to render equal facility of admission the best and most justifiable practice; indeed, the only alternative left under existing circumstances.

It is much to be regretted, that, in some rural and acknowledged healthy district of Scotland, there has never been a separate asylum established whereby the consumptive poor might enjoy the advantages of removal to a purer air than can be found in a general hospital in a large city,—benefits which at present are, in a great measure, confined to the wealthier classes of the community. The results of the practice at the Brompton hospital fully testify to the immense advantages accruing from the maintenance of a separate establishment for the phthisical, and give encouragement to the idea of the establishment of a similar institution in Scotland, which would confer invaluable blessings upon a class of individuals hitherto strangers to everything pertaining to domestic comfort, and whose melancholy lot is well calculated to excite the sympathy and procure the support of the benevolent.

The influence which age and sex have exerted on the returns from phthisis for the past year is so analogous to the reports of former years, and the details so similar to those already published in your Journal, that we forbear repeating them in a separate form. The following table, deduced from the statistics of the last four years, will exhibit a more comprehensive groundwork for analysis:—

* *Medico-Chirurgical Review*, No. 5.

	Total.	Dismissed		Died.		Mortality per cent.		Av. residence in days.	
Ages.	M. and F.	M.	F.	M	F.	M.	F.	M.	F.
From 1 to 10	6	4	1	...	1	...	50	32	16
... 10 to 20	68	30	20	11	7	25·27	25·92	27	29
... 20 to 30	149	60	32	30	27	33	45·76	29	30
... 30 to 40	97	42	16	22	17	34·37	51·51	29	29
... 40 to 50	40	19	5	9	7	32·14	58·33	25	34
... 50 to 60	7	3	2	2	...	40	...	30	24
... 60 & upwards	1	...	...	1	...	100	...	10	...
Total,	368	158	76	75	59	32·14	43·70	28	29

From this summary of the more important results, it follows, that the decennial period from 20 to 30 furnishes by far the largest number of cases, and that the admissions decrease in such rapid proportion after this period of life as to leave comparatively few cases subsequent to the age of 50. Age itself, as judged of from the returns of the various decennial periods, does not appear to influence the mortality in any great degree, and the data in the preceding table, sufficiently comprehensive to warrant this deduction, are more to be relied on from the average residence of the two sexes in hospital being very nearly the same in either sex. A more remarkable difference is observable from an estimate of the mortality in the two sexes. Females exhibit an excess in mortality of about 11 per cent. over males, although the mean residence of such class in hospital is nearly equal. We must make allowance, however, as we did formerly in explanation of the results in the Edinburgh and Glasgow hospitals, for the mean residence of the cases dismissed, averaging much longer in that class which exhibits the highest amount of mortality, and *vice versa*; consequently, the stay of the more favourable class of female cases, reduced in the table to 29 days, will be found, *cæteris paribus*, to exceed considerably the mean residence of the males who are similarly circumstanced. But this is barely sufficient to account for the deviation, which appears confirmed by the results of experience in other hospitals, and there are doubtless other causes in operation of a more powerful nature than the preceding, to explain the fact. The want of sufficient data forbids us speculating too widely on the subject. But it is extremely probable that the smaller amount of mortality among males is attributable in a great measure to the greater frequency of the mixed cases of the disease among that class, the habits of the sex exposing them in a more particular manner to those exciting causes productive of inflammation. The shorter stay of the same parties may also be partly accounted for by their anxiety to return to their usual employment, more especially if they have

families depending on their exertions, in which case males must rest content with a smaller amount of benefit than will fall to the lot of the female sex who are placed in an analogous position. The proneness of the phthisical to contract early marriages, as alluded to in Dr Walshe's report, we have been able to confirm by examination and comparison of the records of non-phthisical cases along with the former, and find that the disposition exists much in the same ratio in both sexes.

We are not sure if any inference can be drawn from an analysis of the different occupations which the patients followed, that might assist in explaining the disposition of phthisis to affect one class of operatives over another. Among the males, labourers and weavers, and among females those engaged in factories, include by far the largest proportion of the cases admitted. But as these individuals represent the most populous class in a labouring population, it would be unfair to deduce any conclusion from this head, without first ascertaining the relative proportionate number of these parties in a given mass of population.

The form of the disease commonly known by the name of collier's phthisis, and attended with the infiltration of black matter into the substance of the lungs, is perhaps more frequently met with in the Glasgow hospital than in most other institutions. The smoky condition of the atmosphere in a district where large quantities of coals are consumed in various manufactories, and especially in iron foundries, and the contiguity of the mining districts, from whence a number of cases are annually sent, sufficiently account for the exposure of the patients to this species of carbonaceous inhalation. Again, any one conversant with the practice of the Edinburgh hospital will have remarked the large number of stone-masons annually treated for phthisis in that establishment; while in the Glasgow infirmary, on the other hand, the number of operatives of the same class admitted are extremely limited. This discrepancy is alleged to arise from a difference in the hardness of the workable materials in common use in either city.

5. DISEASES OF THE GENITO-URINARY SYSTEM.—Primary and secondary syphilitic cases comprise the most numerous class of affections arranged under the present group. Of the former, there are in all 23 cases, 20 of which were completely restored to health, and 3 relieved. Of the latter, there were 88 cases; 59 cured; 27 reported as relieved, or had a *statu quo* condition kept up during their hospital residences; and 2 terminated fatally, from severe internal complication. From motives of concealment, and partly also from the pecuniary fine exacted on admission, the number of primary syphilitic cases annually treated bears a marked disproportion when compared with the larger returns of the second-

ary cases. These formidable results, arising no doubt from a total neglect of all medical treatment in the early stages, seem to call in question the propriety of fining the delinquents in primary cases. Certainly the moral intentions thought to be inculcated by the continuance of the practice are more than counterbalanced by the host of physical evils consequent on neglect. *Diabetes mellitus*, examples of which disease have become of late years extremely common in the Glasgow hospital, furnishes 11 cases for the present report. Of these, 1 is reported as cured, 7 relieved, 2 dismissed with advice, and 1 case terminated fatally. The remaining diseases of the genito-urinary class are made up principally by a miscellaneous variety of uterine and urinary complaints, fistulæ of various characters, strictures and injuries of the generative organs; but the data are insufficient to justify a recital in this place.

6. DISEASES OF THE GLANDULAR AND SECRETORY SYSTEM. —Abscesses of various parts and of different degrees of severity, acute, chronic, circumscribed, and diffuse, along with the long list of specific diseases resulting from the strumous diathesis, nearly absorb the entire diseases of the present group. Its position, in any systematic classification, is thus rendered very equivocal from the mixed and anomalous characters of the affections concerned; and this is more particularly applicable to the case of scrofula, which exhibits itself in such a variety of forms. Many instances of the latter are, however, excluded from the present classification, on account of the well-marked characters of the symptoms in various cases justifying their separation, and entitling them to a more minute subdivision in the disease list. Abscesses alone furnish 57 cases; of which, 37 were cured, 14 relieved, and 6 proved fatal. Scrofula presents 32 cases; 9 dismissed as cured, 22 relieved, and 1 case terminating fatally. The death occurred in a boy, who had undergone amputation of the arm on account of strumous disease of the elbow-joint, and who was, in external respects, a perfect martyr to the diathesis. Death supervened a few weeks after operation, previous to which the opposite elbow had become very much involved, and hastened the fatal termination, which was also partly ascribed to colliquative diarrhœa. Neeroscopic appearances in this case contradicted the supposition of internal disease, as the viscera of the chest and abdomen were found, on examination, to be entirely free from any scrofulous or tuberculous deposition. Among other returns from the present class, diseases of the glands, independent of suppuration, afford annually a small proportion of cases. The most prominent disease of this class is scirrhus mamma, of which 7 cases are reported, with the following results: 6 were dismissed with advice, or in a *statu quo* condition, in accordance with the non-operative interference now so

generally followed in the treatment of scirrhus ; and 1 was returned as cured, where, from the circumscribed condition of the tumour, and the good health of the patient, a favourable opportunity was presented for excision, and the patient was subsequently dismissed well.

7. DISEASES OF THE INTEGUMENTARY SYSTEM.—Under the integumentary system are included the various diseases of the skin and subjacent tissues, with the exception of the exanthematous eruptions diagnostic of the different types of fever already alluded to, System 1. Erysipelas, which, either in its idiopathic or traumatic form, is seldom absent from the wards of the hospital, forms as usual the bulk of the cases under consideration, there being no fewer than 58 returns from this source during the year. Of these, 50 were dismissed cured, 3 were relieved, and 5 died ; 3 of the deaths having arisen from the disease implicating the face and scalp, and 2 from its supervening upon injury. Exclusive of erysipelas, the other tegumentary affections, properly so called, amount in all to 84 ; of which, 58 were cured, 26 left the hospital more or less relieved ; none being dismissed as altogether incurable. *Psoriasis* and *porrigo capitis* comprise 35 of the above number, and were attended with the following similar results : of the former, 13 were cured and 5 relieved ; and of the latter, 12 were cured and 5 were relieved. From the obstinate and recurrent nature of the present class of diseases, the mean stay of the patients in hospital is considerably prolonged, averaging, over head, in the present returns, about thirty days.

8. INJURIES OF THE OSSEOUS SYSTEM.—Fractures of all degrees of severity, and a variety of affections peculiar to the osseous structure, comprise the numbers recorded under this head. The following classification of fractures will be observed almost to exhaust the group :—

Nature of Fracture.	Total.	Cured.	Relieved, &c.	Died.
Simple of upper extremity, . .	36	29	7	0
„ of lower extremity, . .	119	113	5	1
Compound of upper extremity, . .	19	11	3	5
„ of lower extremity, . .	41	16	3	22
Total,	215	169	18	28

Three deaths are reported from fracture of the skull, and one case was dismissed cured of the same casualty. Of fracture and injury of the spinal vertebræ there are 3 cases, of which 2 died and 1 recovered. As these cases were all the result of accident, and as many of them had afterwards to submit to operative interference, the causes leading to, and the operations incident on, the same, will be best seen by referring to the respective tables.

9. DISEASES OF THE ARTICULAR AND FIBROUS SYSTEM.—Cases of acute and chronic rheumatism, various injuries, dis-

locations and diseases of the joints, exclusive of scrofulous origin, unite to form the total treated under this head. Rheumatism furnishes 73 cases, of which 52 were cured, 20 relieved, chiefly chronic cases, and 1 case terminated fatally. Several of these were complicated with disease of the heart, but I regret much that the data I possess are not sufficiently comprehensive or accurate to warrant recital.

10. DISEASES OF THE CHYLOPOIETIC SYSTEM.—The diseases which fall to be enumerated under this group are necessarily of a very miscellaneous character, and afford comparatively limited data for statistical analysis. The most numerous class of affections are furnished from the returns of diarrhœa and dysentery; the former comprising 22 cases, of which 17 were cured, 1 relieved, and 4 died; the latter likewise including 22, of which 15 were cured, 1 was relieved, and 6 terminated fatally. Notwithstanding the epidemic prevalence of bowel complaint during the last months of the year, the returns from this source were not sensibly affected, and barely average one-half of the cases treated during 1847, the spring of which, it will be remembered, was peculiarly prolific in the production of intestinal affections. A very remarkable case of intestinal concretion, the result of pica or depraved appetite, is reported under this group, and presented the following features, for the particulars of which I am indebted to Dr Ritchie, under whose care the patient was placed:—

Isabella Williamson, aged 21, factory woman, admitted 4th October. The patient stated, that, for a short time prior to admission, she had been affected with severe and painful vomiting, accompanied with constipation of the bowels, and had suffered more or less from disordered menstruation since the period of puberty. On examination, the abdomen was discovered to be hard and tympanitic, and pain was complained of on pressure being made over the contiguous portions of the hypogastric and umbilical regions. The intestines were meteoric, and appeared figured over the whole surface. She complained of much thirst. Tongue red and contracted; pulse 120, small and feeble. For these symptoms, in many respects simulating ileus, the patient was treated with laxatives and stimulating enemata, introduced by means of the long rectum tube, with at first partial alleviation of the symptoms. A hard tumour was now detected, occupying the whole epigastric space, but the patient was shortly afterwards attacked with severe diarrhœa, from the effects of which she rapidly sunk, and died fifteen days after admission. It was not discovered, till after death, that the patient had all her lifetime evinced a morbid appetite for chewing human hair.

The following were the necroscopic appearances.

On opening the abdomen and stomach, a hairy tumour, shaped like the stomach, was extracted, which weighed twenty-one ounces,

and was found uniform in structure, except upon its greater curvature, where two parts, each an inch and a-half in diameter, exhibited a deposition of a dirty paste-like substance, and corresponded to abrasions on the mucous surface of the organ, which was everywhere found highly injected. On a section of the concretion being made, it was discovered entirely devoid of nuclei, and seemed to be composed chiefly of human hair, with here and there small remnants of thread and sponge closely agglutinated with mucous secretion, so that, when afterwards dried, it contracted to nearly one-half its original bulk. In the lower part of the ileum, near the ileo-colic valve, two smaller tumours were found, bearing the distinctive characters of the one already mentioned; and the coats of intestine lying in close approximation with the lower concretion, were found disorganised and perforated. With the exception of marks of inflammation on the outer sides of the peritonæum, and considerable distension and vascularity of the small intestines, the morbid appearances of other organs, not here specified, seemed to have no connection with the cause of death.

11. DISEASES OF THE EYE, EAR, MOUTH, NOSE, AND THROAT.—But a small number of patients fall to be allocated to this group, the nature of which is sufficiently indicated from its title. Out of the total 34 cases, we have 25 cures, 7 dismissed with relief, and 2 deaths. Of the deaths, one arose from *œdema glottidis* in a patient who had been submitted to the operation of tracheotomy, and the other occurred in an individual after undergoing partial excision of the lower jaw for a malignant species of *epulis*, with which he had been affected for a considerable time previous to admission.

12. DROPSIES.—The following classification of dropsies are inserted under a separate head, as the data from which they are collated, give no definite idea of the specific diseases on which the dropsy must depend, and of which it can at best be only recognised as a prominent symptom. Thus, the table presents a considerable number of successfully-treated cases, both of cardiac and renal dropsy, which is sufficient to show that in these cases the primary lesion was not attributable to those severe maladies, so frequently the precursors and concomitants of the dropsical effusion.

	Total.	Cured.	Relieved.	Died.
Anasarca and general dropsy,	16	10	4	2
Ascites,	20	5	8	7
Cardiac dropsy,	47	8	22	17
Ovarian dropsy,	4	0	2	2
Renal dropsy,	31	8	15	8
Hepatic dropsy,	3	1	1	1

13. MISCELLANEOUS DISEASES AND INJURIES.—A large num-

ber of diseases and injuries, that it would be impossible to classify under any physiological arrangement, are comprised under the present system. Lesions originating from external injury, as bruises, burns, and scalds; wounds, lacerated, gunshot, and incised; idiopathic gangrene; ulcers; tumours, simple and malignant; and diseases not sufficiently ascertained,—combine to represent the major part of the admissions. An analysis of the separate sources of accidents is well worthy of attention, as the results of these casualties tell seriously upon our surgical statistics. The following table, prepared from the records, gives a general view of the accident cases treated in 1848, with the mortality and the relative results in both sexes :—

Causes of the Accidents.	Total Cases.	Dismissed.			Died.		
		M.	F.	Tot.	M.	F.	Tot.
Assaults.....	16	9	7	16	...	...	...
Burns and Scalds.....	75	50	11	61	7	7	14
Coal and Lime Pit Accidents	35	30	...	30	5	...	5
Crushes and Bruises.....	17	15	...	15	2	...	2
Cuts & Wounds from various Instruments	10	6	4	10	...	...	...
Dog Bites	4	1	2	3	..	1	1
Falls on the Ground	50	30	19	49	..	1	1
Falls from a Height, chiefly from Scaffolds	73	43	13	56	16	1	17
Falls down Stairs	35	16	16	32	3	...	3
Gunshot Wounds.....	6	4	...	4	2	...	2
Kicks from Horses.	4	3	...	3	1	...	1
Machinery Accidents.	36	22	8	30	6	..	6
Pin Stuck in Throat	1	.	1	1	...	...	...
Railway Accidents.....	43	26	...	26	17	...	17
Run over by Carts, Carriages, and the like	34	26	2	28	6	...	6
Shipwreck.....	1	...	...	...	1	...	1
Spark of Iron into Eye.....	2	2	...	2	.	...	...
Weights, as Loads of Earth, &c. falling } on Patients... ..	46	39	1	40	6	...	6
Causes of Accidents not ascertained....	4	3	...	3	1	...	1
Total.....	492	325	84	409	73	10	83

The mortality here indicated falls far short of the average amount occurring in Glasgow from the same causes, as the mortality bill of the past year cites no fewer than 272 cases referable to this head. Setting aside, however, the deaths happening immediately after the receipt of injury, and such as are depending on suicide, we have, from the tabular statement, a pretty accurate idea of the general average number of serious injuries occurring annually among the working population of Glasgow and suburbs. The most fertile sources of these returns show a close similarity to the aggregate results of former years, both in numbers and mortality, and present, as far as we know, more comprehensive data than any single institution in the country. Not a few of the cases became subjects of operation. A considerable number were utterly

hopeless from the first, and died soon after admission ; and several fell victims to the chances of delaying operation. The table on pages 22 and 23 exhibits the total operations performed for all causes during 1848.

The results of the larger amputations will be observed to exhibit the same serious amount of mortality which has of late years been attendant on this class of operations, and has rendered their performance, even in cases of urgency, a subject of the gravest consideration and doubt. Primary operations of the limbs, exclusive of the hand and foot, number 27 ; of these, 13 were cured and 14 died, thus furnishing a mortality of 51·8 per cent. Secondary amputations of a similar character were 30 in number ; of these, 10 were dismissed and 20 died, being exactly two-thirds of the cases submitted to operation. In the 27th volume of the *Medical Gazette* there is a paper by Dr Lawrie of Glasgow, detailing the results of amputations performed in the Glasgow infirmary, from its commencement in 1794 till 1838 inclusive. The series of facts there brought to light, besides showing the great mortality attending the larger amputations, went far to prove, that the causes leading to the fatal results were increasing in their operation towards the termination of the period from which the data were constructed. Since the date of Dr Lawrie's researches a period of ten years has elapsed, furnishing a large additional amount of evidence connected with the subject of amputation, and confirming in some respects the opinions formerly entertained.

My attention being forcibly directed to the subject, I felt anxious to ascertain the aggregate results of operative practice during this last decennial period, for the purposes of comparison with the previous data. With this view, all the case-books which could be obtained were examined, from 1839 to 1848 inclusive, and the results of the larger amputations carefully noted. The hospital reports for the last six years furnished the more numerous details of the primary cases occurring during the period ; and, from these returns being more explicit and comprehensive than the journals, the total number of primary cases are shown to exceed by a third the aggregate of secondary amputations. In the returns from secondary amputations it is necessary, as will be shown in the sequel, to adopt a more minute subdivision than is generally given in hospital reports. We have accordingly divided the secondary cases into two classes, whereby a complete distinction may be kept up between those amputations applicable to cases of injury, where the operation has been delayed till the failure of attempts at re-union, and those rendered necessary from disease, not unfrequently termed pathological amputations. It is scarcely necessary to add, that the term primary has been limited to those cases

OPERATIONS PERFORMED DURING THE YEAR 1848.

Operations.	Total.	Disease or injury requiring operation.	Cause of Death.	Cured.		Relieved.		Died.	
				M.	F.	M.	F.	M.	F.
Amput. Prim. at Shoulder-Joint.....	3	Compound Fracture; Crush; Laceration... ..	Phlebitis.....	1	..	..	..	2	..
.. .. of Arm	4	3 Comp. Fract.; 1 Comp. Disloc. of Elbow-Joint...	Phlebitis	2	..	..	..	2	..
.. .. of Fore-arm	7	2 Comp. Fract.; 3 Crush; 2 Open Wrist-Joint. ...	Phlebitis	4	2	..	..	1	..
.. .. of Hand	1	Smash	Phlebitis .....	..	..	..	..	1	..
.. .. of part of Hand	1	Laceration .....	.. ..	..	..	..	..	1	..
.. .. of Fingers.....	15	9 Comp. Fract.; 5 Lacer.; 1 Comp. Disloc.....	.. ..	12	3	..	..	..	..
.. .. of Thigh	4	2 Comp. Fract.; 2 severe Laceration	{ Phlebitis; Pneu- } { monia; Shock... }	1	..	..	..	3	..
.. .. through Condyles } of Femur..... }	2	1 Comp. Fract.; 1 Open Knee-Joint.....	Dis. of Pelvic Viscera	1	..	..	..	1	..
.. .. at Knee-Joint	1	Gangrene	Extension of Gangrene	..	..	..	..	1	..
.. .. of Leg	6	3 Comp. Fract.; 2 Crush; 1 Avulsion ..	Shock; Pneumonia...	2	..	..	..	4	..
.. .. at Ankle-Joint	2	Crush.....	Shock.. ..	1	..	..	..	1	..
.. .. Chopart's operation...	2	Comp. Fract. of Metatarsus; Crush	Gangrene.....	1	..	..	..	1	..
.. .. of part of Foot.....	2	Laceration .....	.. ..	2	..	..	..	..	..
.. .. of Great Toe ..	1	Crush .....	.. ..	1	..	..	..	..	..
.. .. Second. of Arm	7	{ 3 Strumous Elbow; 2 Compound Fracture; 1 } { Caries; 1 Fungus Hæmatodes..... }	{ Phlebitis; Erysipe- } { las; Phthisis.... }	1	1	..	..	4	1
.. .. of Fore-arm	2	Crush; Phag. Ulcer.....	.. ..	1	1	..	..	..	..
.. .. of Fingers.....	10	6 Caries; 4 Crush and Comp. Fracture.....	.. ..	6	4	..	..	..	..
.. .. of Thigh... ..	8	{ 3 Open Knee-Joint; 2 Comp. Fract.; Neuro- } { sis; Fungus Erysip.; Gangrene .....	.. ..	..	..	..	..	7	1
.. .. of Leg	13	{ 4 Ulceration; 3 Comp. Fract.; 2 Gangrene; } { 2 Caries; Crush; Fungus..... }	.. ..	5	1	..	..	6	1
.. .. of Ankle-Joint	4	2 Disloc. Ankle; 1 Struma; 1 Crush .....	.. ..	3	1	..	..	..	..
.. .. of part of Foot	3	2 Caries; 1 Commin. Fracture .....	.. ..	3	..	..	..	..	..
.. .. Chopart's operation ..	1	Ulceration	Diarrhœa. ....	..	..	..	..	..	1
.. .. Chopart's operat. and } Hay's on other Ft. }	1	Gangrene	Phlebitis.....	..	..	..	..	1	..
.. .. Hay's operation on } both Feet.. .. }	1	Gangrene .....	.. ..	1	..	..	..	..	..
.. .. of Toes	5	4 Caries; Gangrene .....	.. ..	4	1	..	..	..	..

[illegible]

only where amputation has been performed in the acute stage immediately following the receipt of injury.

The following table presents an abstract of these inquiries, and includes all the larger amputations with the exception of the foot and hand :—

Nature of Amputation.	Total.	Fore-arm.		Arm.		Leg.		Thigh.		Mortality per cent.
	Cured & died.	C.	D.	C.	D.	C.	D.	C.	D.	
Primary,	169	31	4	34	15	31	22	11	21	36·6
Secondary from injury,...	56	3	..	7	9	6	13	3	15	66
Secondary from disease,	59	3	2	4	5	14	9	15	7	38·9
Total,	284	37	6	45	29	51	44	29	43	42·9

Of these, 251 were males and 33 were females ; of the former, 138 were cured and 113 died ; and of the latter, 24 were cured and 9 died. It follows, therefore, that of the total operations, 162, or 57 per cent., were successfully treated, and that 122, or nearly 43 per cent. of the whole number of cases, died, thus the table presents a surplus mortality of $6\frac{2}{3}$ per cent. over the ascertained results of the practice of the hospital during the first quarter century of its existence. But the most remarkable feature in the present returns is the estimated success of the primary over the secondary amputations. Being somewhat scrupulous in admitting this inference, I was induced to re-examine the various sources of information, to try to discover any inaccuracies which might have occurred on a first perusal. This revisal has tended rather to strengthen than to question the results of the previous inquiry. Secondary amputations from injury furnish 56 cases, 19 of which were successful, and 37 terminated fatally. The mortality from the present class of operations was formerly estimated about 56·6 per cent., but during the period now under consideration it appears to have increased to 66, or nearly two-thirds of the cases submitted to operation. Here, then, is abundant evidence to show the dangers attending the performance of secondary amputation from injury ; and if we add to the already large mortality list the deaths occurring in cases where no secondary operation could be performed, in consequence of the supervention of constitutional and other complications, the risks of the practice will appear still more seriously hazardous. The results of the primary cases are more satisfactory ;—of 169 cases, there were 107 dismissed and 62 deaths, which is equivalent to a mortality of 36·6 per cent. The deduction exhibits a favourable contrast when compared with Dr Lawrie's statistics, in which the recoveries and deaths are found to be nearly equal ; or to the more recently-published researches of Malgaigne,

extending over a like period of ten years, where the mortality in the Parisian hospitals is shown to exhaust nearly two-thirds of the whole admissions. On the other hand, the history of pathological amputations exhibits a diminishing ratio of success ;—of 59 cases reported, 36 were cured and 23 died, being equivalent to a mortality of 38 per cent. The figures show a surplus mortality of 16 per cent. over the previously-published data, and exceed, by $2\frac{1}{3}$ per cent., the deaths from the present statistics of primary amputations. It will be observed, however, that in the more serious amputations of the leg and thigh, the results have been much more successful than in similar operations performed during the primary stage following on injury ; and if we exclude altogether from the table cases of amputation of the fore-arm (which is generally a successful operation), the mortality of the primary cases, instead of averaging 36, will rise as high as 43 per cent., while the results of pathological amputations will not be sensibly affected. Notwithstanding these redeeming features, it must necessarily follow, that while the results of primary amputations have become more favourable during the last ten years, the success of pathological amputations appears to have taken a retrograde movement, and that secondary operations performed for traumatic lesions have become fatal in the extreme. Judging from the returns at different periods, we must also infer that the causes, leading to the unfavourable results in secondary amputations for disease, are increasing in their operation along with the continued existence of the hospital itself. Thus, from 1794 to 1810 inclusive, Dr Lawrie specifies 30 cases with but 1 death occurring ; whereas in the last 30 happening before 1839, there were 8 deaths to 22 recoveries. Since that period the mortality has increased even in a greater ratio, until it has reduced our estimate to the present large percentage. How then, it will be asked, are these serious discrepancies to be explained ?

Few subjects connected with surgical pathology have of late years engaged so much attention as the statistics of amputations. The researches of Philips, Lawrie, Malgaigne, and Simpson, have done much to expose the dangers of operations, more especially in hospital practice, besides showing the influence of external causes on the question at issue. At the same time, we must be alive to the fact, that the very knowledge of these dangers has a reflex effect upon the mortality, by deterring surgeons from having recourse to the knife until every other therapeutic agent fails, and then only as the last alternative for prolonging existence. Statistics from all sources go to prove the less frequency of operative interference in disease now than formerly. The same limb which would have been unceremoniously lopped off some thirty years ago by our predecessors, is, in our own day, allowed its chances of re-

union, and the benefit of those expedients which modern surgery has found serviceable, both in the mechanical and constitutional treatment of disease. From the introduction of these measures, pathological amputations are being more and more confined to the few, many of whom have their strength previously undermined by a constitutional taint, or exhausted by some continuous discharge, rendering the chances of operative success extremely doubtful. Again, the dangers attending the secondary class of amputations for injury are rendered in a greater degree imminent from the previous shock and often complicated accident sustained by the patient, besides the severe ordeal he has to pass through from a residence in a surgical hospital. We question much if the boundary line existing between the two extremes in practice above referred to has ever been accurately determined. Mere statistics from collated experience on the results of amputations afford few satisfactory elements for the solution of this most important problem.

To arrive at any general inference (for accuracy in a point beset with so many difficulties is scarcely attainable), we would require to possess as comprehensive data in connection with those cases in which operative interference was deemed inadvisable, as we at present possess of that class which have been subjected to its performance. I regret that, not having my attention directed to this subject when examining the records for the last decennial period, I am unable at present to furnish data bearing upon the question. By a little diligence, however, a vast amount of practical information could be readily obtained, going far to determine a point of practice which will continue to maintain an importance commensurate with the increasing demands for labour in a commercial city.

While our statistics go to favour the adoption of early amputation, we cannot be regardless of the fact, that the mortality in this, as in most hospitals, is seriously influenced by local causes, exclusive of those already mentioned. In the Glasgow hospital, the most frequent complications are such as depend on the prevalence of epidemic gangrene and erysipelas, while the most formidable, as they are almost uniformly fatal, owe their origin to the insidious occurrence of purulent depositions in the vital organs, accompanied with the supervention of typhoid symptoms, arising from inflammation of the veins of the amputated member. I believe that I am rather below than above the mark, when I state that, of the total deaths occurring after amputation, one-third may be fairly ascribed to the cause last mentioned. All cases are alike subject to its influence. But it shows a greater disposition to ensue after amputations for injury, and especially secondary operations of that character, than it does pathological amputations. In the list of casualties ranked among the necessary evils which attend on hospital practice, there are none which weigh so heavily with the surgeon in

his attempts to save life and limb as the insidious complication now under consideration. For, while other secondary affections are anticipated, and may to a certain extent be remedied, the most assiduous care and well-founded hopes of success, indicated by the improved condition of the patient, are too frequently frustrated by the sudden occurrence of the fatal rigor, and the train of symptoms so peculiarly characteristic of hospital phlebitis.

In the anxiety to discover the causes concerned in the production of this disease, various opinions have always been entertained by different observers; and among the more probable suggestions we may cite overcrowding, want of ventilation and cleanliness, and neglect of other hygienic precautions. None of the causes here indicated are sufficient to explain the supervention of secondary diseases in the Glasgow hospital. They make their appearance in winter as well as in summer, in foggy conditions of the atmosphere as well as in dry, when the wards are in one-half vacated, as in seasons when every bed is occupied; and we are unwilling to admit that essential cleanliness in all departments was not rigidly observed. Such appears also to be the general inference, from observations deduced from collateral sources; for there are, few if any of our hospitals, that can boast an entire immunity from these local complications. In the lately published report for 1848 of the Perth hospital, it is stated "that the evil" (which in this case was epidemic erysipelas) "had increased so greatly, that it became a matter of grave doubt whether a surgical operation, however simple, ought to be performed within the walls." The managers of that institution have, in consequence, authorised steps to be taken for improving the ventilation, painting and cleaning the wards, procuring new bedding for the patients, and otherwise renovating the interior of the hospital. How far the adoption of such measures, which are also in contemplation by the managers of the Glasgow Infirmary, will prove useful in checking the evil, we are not prepared to say. The experiment itself will no doubt afford full scope for future analysis.

Another plan recommended for checking these affections, consists in the removal of the patients to a tenement previously unoccupied, where no danger is to be apprehended from infection latent either in the atmosphere, or in the stone and mortar of the building.

With the view of testing the alleged benefits of the system of temporary segregation, a trial was made in the Glasgow infirmary during the summer months of last year, and the greater number of the capital operation cases were accommodated for a time in the wooden shed, previously constructed for fever patients. Fourteen capital operations were performed under these circumstances, of which 8 were successful and 6 died. Of the 14, 8 were pri-

mary and 6 secondary ; 3 of the primary cases died, and 5 recovered. Among the recoveries are included a case of amputation through the knee-joint, and the only successful primary amputation of the thigh dismissed during the year. Of the secondary amputations, 3 were the result of injury, all of which terminated fatally ; the remaining 3 were the consequence of disease, and were dismissed in a fair way of recovery. We feel it would be premature to deduce any practical inference from the limited nature of the preceding returns ; at the same time it must be allowed, that, from the very serious nature of the cases, the results are sufficiently conclusive to warrant at least a further trial of the experiment. Another subject, to which we will be excused for adverting, is the relative success attending amputations in different hospitals.

The information we possess on this head is exceedingly limited ; being almost entirely confined to a paper by Dr Simpson in the April number for 1848, of the *Monthly Journal of Medical Science*. It would appear, from Dr Simpson's inquiries, which include the results of 618 amputations, from the experience of 30 British hospitals, that the mortality over all did not exceed 29 per cent. of the cases,—a mortality much below the standard of other authorities. These results were, however, collated in a great measure from the records of provincial hospitals, many of which have but recently been instituted ; and it is only fair to surmise that the success of operations in such establishments will be greater than that of larger and older institutions. The physical conditions of the patients in either case must also have a tendency to influence the results, as it can scarcely be expected that the chances of success attending the convalescence of that class previously accustomed to a country life, will stand comparison with the poor, half-starved, ill-conditioned wretches who form a large proportion of our operation cases. Whether the introduction of anæsthetic agents into the operative practice of the Glasgow hospital has had any influence on the success or mortality is still doubtful, as the data we possess regarding this point are not sufficiently comprehensive for analysis. Dr Simpson's recorded results of 302 amputations, performed during the anæsthetic state, certainly favour the supposed therapeutic efficacy of the agent, by reducing the mortality to so low a standard as 23 per cent. It will, however, be borne in mind, in drawing any general conclusion from these returns, that, at the period when Dr Simpson's statistics were collated, the administration of the agent was far from being so universally had recourse to as it now is. At that time, many surgeons, impressed with the pardonable timidity which will ever accompany the introduction of any new and powerful agent into the practice of medicine, relinquished its application in cases of extreme exhaus-

tion, which were least likely to arrive at a favourable issue under either circumstances. Such we know was the practice in the Glasgow hospital, and we observe similar opinions to have been entertained by Velpeau (*Lancet*) in the course of his clinical lectures on the cases occurring after the streets combats of June 1848. It is gratifying to find that these opinions have been gradually abandoned, as no longer tenable, and that increased experience has tended only to confirm the harmless nature of the agent when administered with becoming care.

FEVER DEPARTMENT.

In a previous page an abstract is given of the total fever cases treated in the course of the past year, from which it may be shown that the total admissions have so far diminished, as to constitute little more than one-fourth part of the number treated in 1847, while the mortality, from the same cause, has continued nearly in an equal ratio with the previous returns, the general average yielding about 1 death in every 5 males, and 1 in 8 among females. The majority of the returns were furnished during the spring months, when fever was still epidemic, although rapidly declining in intensity, and the remaining portion must be considered as examples solely of the endemic disease, as little alteration took place in the general returns after the month of May, at which period the disease exchanged its epidemic for its endemic character. The following table presents an enumeration of the various types of fever treated in the fever wards in 1848, with the numbers cured and dead. A variety of other affections, also treated in these wards, are purposely excluded from the present enumeration, since they belong, in a more particular manner, to the medical and surgical department:—

Diseases.			Total Cases.	Cured.	Died.	Mortality per cent.
Typhus,	...	...	807	654	153	18·95
Do. with complication,	...	...	173	133	40	23·12
Continued and Relapsing Fever,	...	...	419	419	...	...
Do. with complication,	...	...	94	70	24	25·53
Small Pox,	...	...	48	35	13	27·0
Scarlet Fever,	...	...	18	17	1	5·5
Febricula,	...	...	15	15	...	...
Dothinenteric Fever,	...	...	7	6	1	14·28
Influenza,	...	...	6	6	...	...
Intermittent Fever,	..	...	1	1	...	...
Total,			1588	1356	232	14·6

When the late epidemic of fever was at its maximum in Glasgow, it presented an almost equal division of two distinct types, namely, typhus and relapsing fever, each bearing well-marked

characters, and differing essentially in their relative mortality. As the disease declined, the ratio of the two sets of cases became considerably altered. Relapsing cases decreased rapidly in number during the last months of 1847 and early part of 1848, while, at the commencement of our present statistical year, typhus cases nearly doubled the amount of the other, and continued to retain the duplicate ratio during the whole course of the year. The typhus cases presented little worthy of note, apart from what are well known to be the leading features of the malady in this part of the island. The reported number affected amounted to 980, of which, 604 were males, and 376 were females. Of the former, 134 died, and of the latter, 59 died; the mortality over all averaging 19·69 per cent., or about 1 in 5. The co-existence of internal complications with the sequelæ of the disease itself have had less influence on the gross mortality than we might at first be disposed to anticipate,—a difference of four per cent. of increase being the amount attributable to cases of mixed typhus over the simpler and uncomplicated forms of the malady.

Among the most frequent complications are recorded cases of erysipelas and inflammatory affections of the respiratory organs, especially of the lining membrane of the bronchi. Of this last, 61 were cases reported, with but 4 deaths, a very small mortality when compared with previous returns, and averaging much less than the recorded results from pure typhus. The numbers, moreover, are not intended to represent the total bronchitic complications, as the extreme frequency of their occurrence in the course of typhus forbids us specifying any but those, in which the nature of the complication was of such severity as to admit of separate registration.

Erysipelatous complications being extremely prevalent in our fever wards during the early part of 1848, have added more to the mortality in mixed typhus than any other class of complications. Of these, 43 cases were reported, with 13 deaths. Of 9 cases reported as complicated with pneumonia, there were 3 deaths.

There were also 5 cases attacked with cholera during the continuance of, or in the course of, convalescence from typhus, in which condition they were removed to the cholera hospital. The remaining complications consisted partly of diseases pre-existing among the patients,—as struma, phthisis, and syphilis,—and partly, also, of abscesses and morbid discharges, the sequelæ of the fever itself, in which cases, more inconvenience was to be apprehended from retarded convalescence than from the fatality attending their progress.

The disposition of the other forms of continued fever to pass almost imperceptibly from one grade to another, has been well

illustrated by the changes which the relapsing or famine fever of 1847 has undergone in the course of the past year. Towards the termination of 1847 and the commencement of 1848, the relapse, usually considered the pathognomonic feature of the malady, was frequently absent, and the primary attack became prolonged to an indefinite extent, but the cases still retained the other symptoms characteristic of the disease at this particular period. As the year advanced, and the numbers diminished, the relapses became less frequent, until they began to form the exception rather than the rule; and the disease ultimately assumed a mild form of synochus, the characters of which it has continued to retain to the present time.

In consequence of the data afforded me for registration not being sufficiently explicit to denote the several varieties of these affections, I have been compelled to classify the whole under one head in the manner adopted in the table. Nor, for several reasons, could much dependence be placed on a more minute classification. At the period under consideration, the disease was evidently undergoing a transition state, and seemed to occupy, for a time at least, a position intermediate between the two great links of the Cullenian division, *synocha* and *synochus*. Many cases that, on admission, presented the customary characters of the relapsing epidemic, began ultimately to assume a more continued type, so that their individual registration might, with sufficient propriety, have been affixed to either head.

Apart altogether from this close analogy in the symptomatic manifestations of a later date, there were other points of similarity existing, tending much to favour the opinion of the identity, or at least of the closely-approximating nature, of these two forms of continued fever. Among the most prominent, I may mention the duration of the disease, the mildness of the symptoms, and consequent limited mortality, the proneness to inflammatory complications of the respiratory organs, and the capability of the one form in producing the other, being confined to separate instances, and never occurring in the same individual. In these phenomena, as well as in other details, principally of an etiological character, a closer resemblance is observable than we are in the habit of meeting with among the typical characters of febrile diseases; a circumstance which goes far to establish the position, that the famine fever of 1847, and the mild form of continued fever which succeeded it, were merely modifications of one and the same disease. In the previous instance, all the symptoms save one important periodic distinction accorded well with the established definition of *synocha* by Cullen. The relapse, which was almost an invariable accompaniment in the course of the epidemic, certainly favoured the supposition entertained by many observers,

that the disease was one *sui generis*, and differing essentially from other forms of continued fever, while others deemed its occurrence sufficient to exclude it entirely from the pale of the Cullenian division. I am sanguine enough to believe, however, that as the epidemic declined, and the relapse, from its infrequency, began to lose its pathognomonic importance, the conflicting opinions regarding the identity or non-identity of the malady with continued fever have been in a great measure abandoned and been resolved into the admission of the former supposition.

To those who attach much importance to varieties in certain symptoms, and thereby encourage multiplicity in the nosological arrangement of fevers, each succeeding epidemic affords ample room for speculation and disputed theories on a subject already too much hampered with the same. In this, as well as in most other diseases of the zymotic class, increased experience shows the necessity of assigning due weight to that mysterious series of periodic revolutions, which since the days of Sydenham have received the somewhat equivocal appellation of the "epidemic constitution of the time," and which doubtless tend to modify the characters of such recurrent epidemic attack.

There is perhaps no point in the history of the late fever more clearly established than the fact of its having been primarily imported from Ireland. Observations made during the origin and subsequent progress of the malady demonstrate its connection with the great amount of destitution which prevailed among the lower orders of Irish at the period, chiefly in consequence of the deprivation of one important article of food on which these classes mainly depended for subsistence. The existence of the fever in Ireland prior to its appearance in this country, and its almost simultaneous outbreak in the maritime cities of the west coast, after an unusual amount of pauper immigration from Ireland, are facts strongly illustrative of the extraneous origin of the malady, and, in short, follow each other on the general principles of cause and effect. But it appears from our returns, that of the two dominant types of fever, the relapsing form had much stronger claims to a foreign origin than typhus, if indeed the spread of the latter could be at all ascribed to this cause. Typhus is constantly present in Glasgow, and although apparently subject to certain laws of periodic exacerbation, it is not the less liable to the action of unforeseen circumstances tending materially to its diffusion. In the course of the past epidemic, the number of typhus cases kept in abeyance for a considerable period posterior to the general diffusion of the relapsing fever; and, as a general rule, the former disease was much more obnoxious to the Scotch resident population than the Irish, while the latter or true famine fever was mainly confined to the low Irish settlers;—whether we take it in

its outbreak, subsequent progress, or later decline, we distinguish the same causes in operation, as if seemingly engrafted on the Irish constitution. The following statement gives the relative numbers of Scotch and Irish affected with the separate types of fever during 1848 :—

Scotch.		Irish.	
Typhus fever, . . .	617	Typhus fever, . . .	363
Synochus and synocha, . .	285	Synochus and synocha, . .	228
<hr/>		<hr/>	
Total,	902	Total,	591

As compared with the previous year, these figures show a sensible decrease in the number of Irish below the Scotch admissions, and likewise exhibit the greatly-diminished number of admissions of both sets of cases, more especially of the milder instances of the disease, which amount to little more than one-half of the typhus cases. Hence it follows, that, as the epidemic declined, it exhausted its energies among the resident population, and was diffused as widely among the Scotch as among the Irish residents, but that, under certain restrictions, both types of fever continued to maintain the national characters which marked their advent. The disproportion between the two sets of cases, as observable in the table, was steadily kept up during the past year, and an examination of the present year's returns would indicate a still greater disparity in the numbers of the synochoid class, since maculated typhus has lately nearly absorbed the whole fever in hospital. It is of importance to bear in mind these changes, when judging of the average mortality from fever in different hospitals and at different periods.

The discrepancies so apt to occur in making a comparative estimate of the total returns of one year with another, may thus be readily accounted for, and due importance be attached to the occurrence either of an unusually severe and fatal form of the disease, or one attended with few serious consequences. Of the last-named character was the continued fever of the past year, which we previously observed, approximated closely in many respects to the relapsing fever which preceded it. In its uncomplicated form, saving the co-existence of advanced age, purposely classed under the mixed head, the cases present no mortality. The number of mixed cases amounted in all to 94, of which 24 terminated fatally, a somewhat larger proportion of mortality than that attending complicated typhus.

Of the above 94 cases, 34 were complicated with bronchitis, out of which 4 died; 5 cases were attended with inflammation of the lungs, of which 3 died. Peritonitis, almost invariably a fatal complication in the relapsing fever of 1847, co-existed in 5 cases, all of which terminated fatally. Abortion occurred in 4 cases,

of which 2 died. Diarrhoea and dysentery, 6 cases, with 2 deaths. Erysipelas, 6 cases, and 1 death. There are 7 cases reported of patients who, on admission, were affected with synochoid fever, but afterwards underwent an attack of some other contagious disease. Of these, 4 had typhus, who all recovered ; 2 had modified small-pox ; and 1 had a severe attack of scarlatina, the last proving the only fatal complication of this group. The remaining 27 complications were attended with 6 deaths, but, from their miscellaneous character the details are uninteresting, and we forbear making special allusion to each.

CHOLERA DEPARTMENT.

The re-appearance of cholera in this country towards the latter part of the past year, and its anticipated visitation of Glasgow, compelled the authorities to put in full exercise those powers with which the legislature has of late years endowed them, for the mitigation of famine and disease. In the course of the late epidemic they received the joint co-operative assistance of the managers of the Infirmary, and among other arrangements made previous to the outbreak of cholera in the city, it was agreed, that that portion of the Infirmary buildings, in common use as a fever hospital, should be set apart solely for the accommodation of cholera cases. With this view, the resident fever cases, which at the period were considerably reduced in number, were removed to another part of the establishment, and measures were taken for the effectual isolation of the three separate classes of patients, so as to afford for each ample accommodation, and at the same time tend to allay the fears of the most fastidious contagionist.

The first case of cholera occurred in Glasgow on the 5th of November, in a man who had returned from the neighbourhood of Edinburgh on the previous evening, where he had been engaged in the interment of a deceased relative who had fallen a victim to the malady. The second occurred on the 8th, and the third on the 12th of the same month, after this time several sporadic cases appeared in various parts of the town ; but, on the whole, the disease proceeded during the remaining part of the month with that tardy progress which so frequently marks its insidious outbreak, misleading the uninitiated with the anticipation of a partial visitation.

The first cases occurring in the practice of the Infirmary were admitted on the 27th November, at which time the wards may be said to have been nominally opened for their reception. From this date till the close of the year, when the epidemic had evidently reached its acme, the admissions increased weekly in number, and were attended with a larger proportion of mortality than

the cases occurring subsequently. The first week of January witnessed a slight diminution in the number of the cases; but the numbers remained nearly at an equilibrium till the end of the third week. After this they gradually diminished, comparatively few cases being admitted in February, and the hospital was finally closed on the 10th of March, no admissions having taken place for some days previous to closure. Although our total cases, for obvious reasons, were exceedingly limited, I believe that the foregoing illustration of the progress of the disease will afford a faithful index of the manner in which it spread more generally over the city. The following statement gives the total numbers treated in the Infirmary during the period specified, as also the results:—

Total.	Cured.		Died.	
	Male.	Female.	Male.	Female.
190	38	44	64	44

Reducing the above numbers to a per-centage mortality, that of males will be found to amount to 62·74, that of females to 50·, while the mean fatality is estimated at 56·84. The generality of the cases were of the very worst description, exhibiting the most malignant features of the malady, and hence the attendant high rate of mortality. It is nevertheless fair to add, that several of the recoveries classified in the above category could not be ranked as cases of Asiatic cholera. Among the number, 2 were reported as having suffered merely from the effects of apprehension, 3 from diarrhœa; and, although the remainder were returned as instances of cholera, I have sufficient grounds for affirming that several of these were merely examples of that species of epidemic diarrhœa peculiar to the period, and so universally prevalent, that few escaped an attack. Such, however, must be reckoned as exceptions to the general run of the cases, as they form but a small proportion of the total admissions; and it is perfectly obvious, in estimating the results of treatment in cholera, that, in proportion to the numbers thus affected, so will the mortality be influenced. Perhaps this observation may in part account for the alleged superiority of private over hospital practice. In the one case, the physician sees his patient at the commencement, and, by the timely use of opiates and astringents, frequently cuts short the disease; while, in the other, he is forced more exclusively to grapple with the malignant train of symptoms too often the harbingers of speedy dissolution, and which have hitherto baffled all the resources of medical skill. It was in this last condition, when the premonitory stages had been superseded by the true choleraic, that the great bulk of the cases were received into hospital.

The previous habits of those attacked have doubtless also a considerable effect in raising the standard mortality. With a view of ascertaining how far these conditions influenced the liability to

the disease and its consequences, the following table has been constructed, embracing the whole of the cholera admissions, and the results of treatment in each separate class of patients. The information which it affords is moreover more to be relied on, as the results were obtained by an individual visiting the houses of the sick, and securing, by personal observation and strict inquiries of relatives and friends, what it would have been impossible to exact from the patients themselves.

	Total.	Cured.		Died.	
	M. & F.	M.	F.	M.	F.
Temperate, and in moderate circumstances,	60	19	21	12	8
Temperate, but in destitution, . . .	75	16	14	24	21
Destitute and dissipated, . . .	40	1	6	22	11
In moderate station, but dissipated, . .	15	2	3	6	4
Total, . . .	190	38	44	64	44

In all epidemics attacking an adult population, we invariably trace some connection between the operation of the poisonous agent and the physical organism ; and it is at least satisfactory to know, that by the proper regulation of the laws which govern our being, we are rendered, to a certain extent, free from the noxious influence. By the infraction of these laws, on the other hand, whether in a moral or a physical sense, the balance between health and the operation of external agents is subverted ; the constitution is thrown open to the invasion of multitudinous evils ; and man is compelled to pay compound interest for the debt which he originally owes to nature. Such at least is the result of observations deduced from everyday experience, and as its application holds good in those extensive visitations of fever to which this country is ever and anon subjected, the like principle will be admitted in the case of epidemic cholera. But the facts speak for themselves. The numbers, it is true, are limited, nor do we possess any criterion whereby we can judge of the average numbers of each of the above-mentioned classes in a given mass of population ; but the results are not on this account less valid and trustworthy. The destitute, the infirm, and the intemperate are beyond all proportion the most frequent victims of the malady. It would be urging the matter too far to affirm, that the well-lived, the robust, and the vigorous were in no danger of becoming affected. Unhappily we have too many instances to the contrary ; but their cases are chiefly sporadic ; they form no nucleus for the further dissemination of the fatal poison ; they appear sacrifices to inordinate susceptibility, and, in virtue of their previous habits, death is dealt out with a more sparing hand. The pestilence, indeed, knows its victim. Its mission to the healthy is less frequent, worse defined, and may often be stayed in its onward course ; but there are few points better established than that it descends with unsparing malignity on

those who, in defiance of its appointments, continue in the indulgence of their vicious propensities. Those causes operate with the same force among the inhabitants of the remote deltas of the Ganges as amid the busy haunts of our native cities. The following table represents the ages of the patients attacked, along with the results at each period :—

From	Ages.	Total.	Cured.		Died.	
		M. & F.	M.	F.	M.	F.
	1 to 10 years,	16	4	4	4	4
„	10 to 15 „	16	4	6	4	2
„	15 to 20 „	25	7	10	6	2
„	20 to 25 „	22	3	5	8	6
„	25 to 30 „	40	11	6	15	18
„	30 to 40 „	37	4	6	14	13
„	40 to 50 „	22	4	5	9	4
„	50 to 60 „	3	0	0	1	2
„	60 upwards,	9	1	2	3	3
Total,		190	38	44	64	44

We notice in some respects a difference between the results of the foregoing table and the ages of the patients proved to be most prone to attacks when cholera was epidemic in this country in 1832. At that time, as far as we can learn, the aged suffered in much greater proportion than the young or middle-aged; and children were by no means so frequently the victims of the disease as they have been during the present epidemic. This fact was corroborated by the statistical records of the hospital in Clyde Street, the building set aside by the city parochial authorities for the accommodation of cholera cases in that part of the town, and which received nearly 1000 patients during the eighteen weeks the epidemic prevailed.

From the fatal rapidity of the symptoms, after the disease had fairly established itself, the average residence of the cases was necessarily very limited. The stay of the fatal cases averaged over all about 56 hours, varying in extent according to the manner in which death occurred. Thus, out of the 108 deaths, 60 happened before the residence of the patients had exceeded 48 hours, while the remaining 48 occurred at varying intervals after that period. A considerable proportion of the last mentioned class were instances of the typhoid reaction or secondary fever of cholera, a phase which the malady frequently presented, especially in those patients who were fortunate enough to pass scathless through an extreme state of collapse.

In the successful cases, the convalescence, although not so rapid as we were disposed to anticipate from the accounts of the former epidemic, was still, on the whole, short and satisfactory, being seldom protracted beyond 14 days, and averaging over all about 10 days. With but one or two exceptions, the patients suffered little from relapses or sequelæ of any kind. One old woman suf-

ferred much from extensive abscesses in her right shoulder and arm, but was ultimately dismissed well after a protracted residence of 66 days. Another female, aged 36, may be said to have been the only case in which the affection of the gastro-intestinal canal was followed subsequently by true organic lesion. This patient remained in the hospital with symptoms of chronic dysentery until the wards were closed, after which she was removed to the medical wards, where she gradually sunk and died, 71 days from the period of admission. The principal inconvenience in the course of convalescence was, in fact, chiefly attributable to the profuse salivation that the patients underwent from the administration of large quantities of calomel in the early stages.* Notwithstanding the havoc the disease made in many of the public institutions, it affords agreeable reflection that so few cases should have occurred within the other departments of the hospital, while cholera was at the same time extremely prevalent in the neighbourhood of the house.

In the medical and surgical department, only one patient was seized, a young woman, who had undergone amputation of the arm, and who died after a 48 hours' illness. In the fever wards, 5 cases occurred in all, 4 supervening upon fever, and, in the remaining case, the choleraic symptoms appeared while the typhus exanthem was still distinctly visible, exhibiting the rare pathological phenomenon of two essentially distinct epidemics co-existing in the same individual. Of the 5, 3 died and 2 recovered, one poor girl tenaciously, notwithstanding the successive attacks of severe typhus, the extreme collapse of cholera, and an aggravated form of consecutive fever.

Instances of the disease among the officials were entirely confined to those in connection with the cholera wards. Four cases were reported under these circumstances, 3 of which, comprising a laundress, a nurse, and a bathman, recovered, while the remaining case, the only one of the number presenting the true algide symptoms, died three days after the first appearance of the symptoms. The subject of this last was a half-famished individual, who had been engaged a short time previously to act in the capacity of night porter, and who, in the course of his illness, pertinaciously ascribed the primary disorder to the fact of his having respired, for a few moments, the close and polluted atmosphere of a room while removing a cholera patient to hospital. I believe that we effected much good, both in facilitating the recoveries among the patients, and, to a certain extent, protecting the ward officials, by adopting a few precautionary measures with respect to the allocation of the

* For an account of the treatment pursued in these cases, see an interesting paper in one of the numbers of the Medical Gazette for August last, by Dr M'Gregor, physician to the hospital.

patients and the condition of the wards. At the first outbreak, one double ward sufficed to accommodate all the cases without any tendency to overcrowding; but as the numbers increased, towards the end of December, we found it necessary to open two additional wards, setting them apart chiefly for convalescents and cases of secondary fever. In the receiving ward we retained 3, and sometimes 4 nurses, the number of patients never exceeding 13, and averaging generally 8 or 9, while, in the others, 2 nurses to each were considered a sufficient complement. The temperature of the receiving ward was kept usually as high as 70° or 75° of Fah., so as to facilitate the measures employed for the maintenance of the animal heat; and due precautions were used, by the occasional temporary vacation of the ward, for the better prevention of the evils that might have ensued from over-concentration. The advantages accruing from the adoption of these measures, especially of the last-named, were exceedingly obvious; and should the epidemic again revisit us, which, in the course of events, we cannot deem improbable, there is no point on which I would feel it more my duty to insist, than that of vacating, from time to time, the accommodation afforded for the affected, and by the liberal use of what disinfecting agents we possess, endeavour, as far as possible, to counteract the concentrated influence of the poison.

1840

Received of the Hon. the Secy. of the Navy
the sum of \$1000.00 for the purchase of
the ship "Albatross" for the service of the
Navy.

Witness my hand and seal this 1st day of
January 1840.

John C. Calhoun

Secy. of the Navy